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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,481	08/01/2006	Soon Ho Ahn	PHI0076US	8797
23413	7590	08/10/2011	EXAMINER	
CANTOR COLBURN LLP			WEINER, LAURA S	
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			ART UNIT	PAPER NUMBER
			1726	
			NOTIFICATION DATE	DELIVERY MODE
			08/10/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary	Application No.	Applicant(s)	
	10/588,481	AHN ET AL.	
	Examiner	Art Unit	
	/Laura Weiner/	1726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-14, 18-22 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) 26-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-14 and 18-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7-14-2011 has been entered.

Election/Restrictions

2. Applicant's election without traverse of a first additive being a biphenyl and a second additive being cyclohexylbenzene in the reply filed on 2-11-2010 is acknowledged. Since applicant has removed the choice of broadly a biphenyl compound for one additive and removed the choice of broadly a fluorobiphenyl compound or a cyclohexylbenzene compound for a second additive, a new additive combination was searched. The new additive combination searched was a first additive comprising specifically thiophene paired up with a second additive specifically cyclohexylbenzene. Since applicant has cancelled the additive combination, a first additive comprising specifically thiophene paired up with a second additive specifically cyclohexylbenzene, a new additive combination was searched. The additive combination searched was a first additive comprising specifically biphenyl (diphenyl or

phenyl benzene) paired up with a second additive specifically isopropyl benzene (cumene or 1-methylethyl benzene or 1-phenylpropane) was searched

3 Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26-29 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

4. Applicant's arguments with respect to claims 10-14 and 18-22 have been considered but are moot in view of the new ground(s) of rejection.

The rejection of claims 10, 12- 14, 16-18, 20-22, 24-25 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kozuki et al. (JP 2003-22838); the rejection of claims 10, 12- 14, 16-18, 20-22, 24-25 under 35 U.S.C. 103(a) as being unpatentable over Kozuki et al. (JP 2003-22838); the rejection of claims 10-14, 16-22, 24-25 under 35 U.S.C. 103(a) as being unpatentable over Hinohara et al. (JP 2003-257479, translation) in view of Kozuki et al. (JP 2003-22838, translation of specification and claims) and the rejection of claims 10-14, 16-22, 24-25 under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (WO 02/31904/US 2003/0118912) have been withdrawn because applicants have narrowed the choices for the first additive and the second additive respectively and have cancelled the searched

species so claim 10 does not allow for a first additive to be specifically a thiophene compound and a second additive to be specifically a cyclohexylbenzene compound.

Claim Rejections - 35 USC § 112

5. Claims 10-11, 14, 18-19, 22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the oxidation initiation potential of the additives iii) and iv) being 4.2-5.3 V, does not reasonably provide enablement for the oxidation initiation potential of the additives iii) and iv) being 4.2 V or higher.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. An upper range is missing from the claims.

Claim Rejections - 35 USC § 103

6. Claims 10-14, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 2003-308875, translation).

Mori teaches on page 1 of the translation, a battery comprising a cathode, an anode and an electrolyte. Mori teaches on page 4, [0032-0033], that the electrolyte comprises a solvent such as ethylene carbonate, propylene carbonate and a lithium salt such as LiPF₆, LiBF₄, etc. Mori teaches on page 2, that the electrolyte comprises an alkylbenzene derivative, a cycloalkyl benzene derivative or a biphenyl derivative. Mori teaches on page 3, that the addition of the alkylbenzene derivative, the cycloalkyl benzene derivative or the biphenyl derivative is present in an amount of 2-4 wt%. Mori

teaches on pages 3-4,[0024], that the alkylbenzene derivative has the third class carbon which adjoins the phenyl group is characterized by being 1,4-bis(1-methylpropyl benzene) [a cumene].

Since Mori teaches the same first additive compound a biphenyl and the same second additive, a cumene (isopropyl benzene), then inherently the same first additive compound having an oxidation initiation potential of more than 4.2V or 4.2-5.3 V or 4.5-4.9 V and a second additive compound with an oxidation initiation voltage of more than 4.2 V or 4.2-5.3 V or 4.5-4.9 V which is higher in oxidation initiation potential than the first additive, and deposits oxidative products or forms a polymer film in oxidation must also be obtained.

In addition, the presently claimed property of first additive compound having an oxidation initiation potential of more than 4.2V and a second additive compound with an oxidation initiation voltage of more than 4.2 V which is higher in oxidation initiation potential than the first additive, and deposits oxidative products or forms a polymer film in oxidation would have obviously have been present once the Mori product is provided.

In re Best, 195 USPQ 433 (CCPA 1977).

Mori discloses the claimed invention except for specifically teaching that the first additive is specifically a biphenyl and present in an amount of 0.1-2 wt% and the second additive is specifically cumene (isopropyl benzene) and present in an amount of 0.5-5 wt%.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use both additives, a biphenyl and cumene (isopropyl benzene)

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in the electrolyte taught by Mori because Mori teaches that these additives can be used and because it is prima facie obvious to combine two compositions each of which is taught by prior art to be useful for the same purpose in order to form a third composition that is to be used for the very same purpose. See *In re Kerkhoven*, 205 USPQ 1069; *In re Susi*, 169 USPQ 423.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use 0.1-2 wt% of the first additive and 0.5-3 wt% of the second additive, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use 1 or 2 wt% of the first additive and 1 or 2 wt% of the second additive, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Laura Weiner/ whose telephone number is (571)272-1294. The examiner can normally be reached on M-H (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura Weiner/
Primary Examiner
Art Unit 1726

August 4, 2011